We claim:

1. A catalyst composition comprising:

(a) one or both of a titanyl compound of the formula X_mTiOY_o and an organic titanium salt of the formula X_mTiY_o; and

(b) a catalyst enhancer comprising a compound selected from the group consisting of soluble compounds of Al, Co, Zn, and Sn;

wherein X is selected from the group consisting of : H, Li, Na, K, Rb, Cs, Be, Ca, Mg, Sr, Ba, and ammonium; m=0, 1 or 2; Y is a ligand of the formula $C_aH_bO_c$ wherein a=1 to 30, b=0 to 60, and c=1 to 10; and o=2, 3, or 4.

2. The catalyst composition of claim 1, wherein one or both of the catalyst and the enhancer comprises an oxalate moiety.

3. The catalyst composition of claim 1, wherein component (a) comprises $X_mTiO(C_2O_4)_2$.

4. The catalyst composition of claim 1, wherein in component (b) comprises a soluble Al compound.

5. The catalyst composition of claim 1, further comprising a soluble antimony compound.

6. The catalyst composition of claim 1, wherein the catalyst enhancer further comprises a compound selected from the group consisting of oxalate or C1-C26 carboxylate salts of Li, Na, K, Rb, Cs, Be, Ca, Mg, Sr, and Ba, wherein the catalyst enhancer comprises an oxalate salt if the catalyst composition comprises X_mTiY_o.

7. The catalyst composition of claim 1, wherein said one or both of a titanyl compound of the formula X_mTiOY_o and an organic titanium salt of the formula X_mTiY_o comprises potassium titanyl oxalate, and the catalyst enhancer comprises a soluble aluminum compound and potassium oxalate.

8. A method of making an ester, the method comprising performing an ester-forming condensation reaction on a feedstock to produce a condensation product, the reaction comprising heating a mixture of the feedstock and a catalyst composition comprising:

(a) one or both of a titanyl compound of the formula X_mTiOY_o and an organic titanium salt of the formula X_mTiY_o; and

(b) a catalyst enhancer comprising a compound selected from the group consisting of soluble compounds of Al, Co, Zn, and Sn;

wherein X is selected from the group consisting of : H, Li, Na, K, Rb, Cs, Be, Ca, Mg, Sr, Ba, and ammonium; m=0, 1 or 2; Y is a ligand of the formula $C_aH_bO_c$ wherein a=1 to 30, b=0 to 60, and c=1 to 10; and o=2, 3, or 4.

9. The method of claim 8, wherein said one or both of a titanyl compound of the formula X_mTiOY_o and an organic titanium salt of the formula X_mTiY_o comprises $X_mTiO(C_2O_4)_2$.

10. The method of claim 8, the catalyst composition further comprising a soluble antimony compound.

11. The method of claim 8, wherein said one or both of a titanyl compound of the formula X_mTiOY_o and an organic titanium salt of the formula X_mTiY_o comprises potassium titanyl oxalate, and the catalyst enhancer comprises a soluble aluminum compound and potassium oxalate.

12. The method of claim 8, wherein the feedstock comprises a carboxylic acid and an alcohol, the condensation reaction comprising esterifying the carboxylic acid with the alcohol.

13. The method of claim 12, wherein the carboxylic acid comprises terephthalic acid, the alcohol comprises ethylene glycol, and the condensation product comprises BHET.

14. The method of claim 8, wherein the feedstock comprises BHET and the condensation product comprises PET.

15. The method of claim 8, wherein the feedstock consists essentially of PET, the heating being performed at a temperature below a melting point of the feedstock, the condensation product comprising PET of higher molecular weight than the PET in the feedstock.

16. An ester made by a method comprising performing an ester-forming condensation reaction on a feedstock, the reaction comprising heating a mixture of the feedstock and a catalyst composition comprising:

(a) one or both of a titanyl compound of the formula X_mTiOY_o and an organic titanium salt of the formula X_mTiY_o; and

(b) a catalyst enhancer comprising a compound selected from the group consisting of soluble compounds of Al, Co, Zn, and Sn;

wherein X is selected from the group consisting of : H, Li, Na, K, Rb, Cs, Be, Ca, Mg, Sr, Ba, and ammonium; m=0, 1 or 2; Y is a ligand of the formula $C_aH_bO_c$ wherein a=1 to 30, b=0 to 60, and c=1 to 10; and o=2, 3, or 4.

17. A method of making an ester, the method comprising performing an ester-forming condensation reaction on a feedstock consisting essentially of PET to produce a condensation product comprising PET of higher molecular weight than the PET in the feedstock, the reaction comprising heating, at a temperature below a melting point of the feedstock, a mixture of the feedstock and a catalyst composition comprising:

(a) one or both of a titanyl compound of the formula X_mTiOY_o and an organic titanium salt of the formula X_mTiY_o; and

(b) a catalyst enhancer comprising a compound selected from the group consisting of oxalate or C1-C26 carboxylate salts of Li, Na, K, Rb, Cs, Be, Ca, Mg, Sr, and Ba, wherein the catalyst enhancer comprises an oxalate salt if the catalyst composition comprises X_mTiY_o;

wherein X is selected from the group consisting of : H, Li, Na, K, Rb, Cs, Be, Ca, Mg, Sr, Ba, and ammonium; m=0, 1 or 2; Y is a ligand of the formula $C_aH_bO_c$ wherein a=1 to 30, b=0 to 60, and c=1 to 10; and o=2, 3, or 4.

18. The method of claim 17, wherein one or both of the catalyst and the enhancer comprises an oxalate moiety.

19. The method of claim 17, wherein the catalyst enhancer comprises a salt of potassium.

20. The method of claim 17, the catalyst composition further comprising a soluble antimony compound.

21. The method of claim 17, the catalyst composition further comprising a soluble germanium compound.

22. The method of claim 17, wherein said one or both of a titanyl compound of the formula X_mTiOY_o and an organic titanium salt of the formula X_mTiY_o comprises potassium titanyl oxalate, and the catalyst enhancer comprises potassium oxalate, the catalyst composition further comprising a soluble antimony compound.

23. An ester made by a method comprising performing an ester-forming condensation reaction on a feedstock consisting essentially of PET to produce a condensation product comprising PET of higher molecular weight than the PET in the feedstock, the reaction comprising heating, at a temperature below a melting point of the feedstock, a mixture of the feedstock and a catalyst composition comprising:

(a) one or both of a titanyl compound of the formula X_mTiOY_o and an organic titanium salt of the formula X_mTiY_o; and

(b) a catalyst enhancer comprising a compound selected from the group consisting of oxalate or C1-C26 carboxylate salts of Li, Na, K, Rb, Cs, Be, Ca, Mg, Sr, and Ba,

wherein the catalyst enhancer comprises an oxalate salt if the catalyst composition comprises X_mTiY_o;

wherein X is selected from the group consisting of : H, Li, Na, K, Rb, Cs, Be, Ca, Mg, Sr, Ba, and ammonium; m=0, 1 or 2; Y is a ligand of the formula $C_aH_bO_c$ wherein a=1 to 30, b=0 to 60, and c=1 to 10; and o=2, 3, or 4.

24. The ester according to claim 23, wherein the catalyst composition further comprising a soluble antimony compound.

25. The ester according to claim 23, wherein the catalyst composition further comprising a soluble germanium compound.